REMARKS

In view of the foregoing amendments and the following remarks, Applicants respectfully request reexamination of the present application. Claim 1 has been amended, Claims 4, 6 and 12-14 have been cancelled and new Claim 24 has been added.

Applicants have amended independent Claim 1 to incorporate the limitation of dependent Claim 4 and the additional limitation that the metal is a molten metal. Support for this amendment can be found on page 5 at lines 11-14. Claim 4 has been cancelled. Claim 6 has also been cancelled. New Claim 24 has been added and support for new Claim 24 can be found at page 6, lines 4-6.

Claim Rejections – 35 U.S.C. 103(a)

The Examiner has rejected Claims 1-3, 6 and 7 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,337,067 by Jäger et al. in view of U.S. Patent No. 4,268,359 by Rammler et al.

Applicants have amended independent Claim 1 to incorporate the limitation of Claim 4, namely that the treatment gas is formed by the steam oxidation of iron. Therefore, removal of this rejection is requested.

The Examiner has rejected Claims 1-5, 7 and 11 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,615,298 by Benson.

With respect to Claims 1, 3 and 7, the Examiner states that Benson discloses a method comprising contacting a coal feedstock with a treatment gas comprising hydrogen to convert matter to methane and carbon/char at a reaction temperature of 1,000° to 2,000°C [sic., °F] (about 538°C to 1093°C).

The Examiner states that Benson discloses all of the claim limitations as set forth above, but the reference does not explicitly disclose the amount of time in which the coal and H_2 are reacted as well as the specific amount of hydrogen. The Examiner states that the specific amount of reaction time and weight percent of hydrogen is not considered to confer patentability to the claims. The Examiner also states that as the reactor efficiency, amount of hydrogen used and amount of desired product produced are variable(s) that can

be modified, among others, by adjusting said amount of reaction time, with said amount of desired product increasing as the time is increased, the precise reaction time and weight percent of hydrogen generated would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. The Examiner states that as such, without showing unexpected results, the claimed amount of time and weight percent of hydrogen cannot be considered critical. The Examiner concludes that one of ordinary skill in the art would have optimized, by routine experimentation, the amount of reaction time and weight percent of hydrogen in the apparatus of Bensen in order to obtain the desired amount of methane product and operational efficiency (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

Applicant has amended Claim 1 to incorporate the limitation of Claim 4. The Examiner states that with respect to Claim 4, Benson further discloses that the hydrogen/treatment gas is formed by steam oxidation of iron (Col. 2, lines 58-64).

Applicants have also amended independent Claim 1 to recite that the treatment gas is formed by contacting a molten metal that includes iron with steam to form iron oxide. In contrast, Benson discloses a fluidized bed of iron and iron oxide particulates mixed with carbonaceous solids. Benson does not disclose or suggest the use of a molten metal and the apparatus disclosed by Benson would not be amenable to modification to utilize a molten metal.

Therefore, removal of this rejection with respect to independent Claim 1 and Claims 2, 3, 7 and 11, which depend upon Claim 1, is requested.

The Examiner has rejected Claims 1-3 and 7 under 35 U.S.C. 103(a) as being unpatentable over U.S. 4,268,359 by Rammler et al.

As is discussed above, Applicants have amended independent Claim 1 to incorporate at least the limitation of dependent Claim 4. Therefore, removal of this rejection is requested.

The Examiner has rejected Claims 8 and 9 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,337,067 by Jäger et al. in view of U.S. Patent No. 4,268,359 by Rammler et al. as applied to Claim 1 and further in view of U.S. Patent No. 4,942,734 by Markbrieter et al.

Each of Claims 8 and 9 is dependent upon Claim 1, which has been amended to incorporate at least the limitation of Claim 4, discussed above. Therefore, removal of this rejection is requested.

The Examiner has rejected Claims 8 and 9 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,268,359 by Rammler et al. as applied to Claim 1, and further in view of U.S. Patent No. 4,942,734 by Markbreiter et al.

As is discussed above, independent Claim 1 has been amended to incorporate at least the limitation of Claim 4. Therefore, removal of this rejection is requested.

The Examiner has rejected Claim 10 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,615,298 by Benson in view of U.S. Patent No. 4,172,431 by Tatem et al.

As is discussed above, independent Claim 1 has been amended to incorporate at least the limitation of Claim 4. Therefore, removal of this rejection is requested.

Applicants have also added new dependent Claim 24. Claim 24 recites a further step wherein the contacting with steam is terminated and the iron oxide is then reduced to iron. Benson discloses a single reactor that operates in continuous mode. The steam is terminated at any portion of the process to permit the iron oxide to be reduced to iron. Therefore, it is respectfully submitted that new Claim 24 further distinguishes the present invention with respect to Benson.

Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecute and or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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